UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,893	09/23/2003	Thomas E. Jenkins	3085.004	8199

7590 10/14/2005

Matthew A. Pequignot
Hall, Priddy, Myers & Vande Sande
Ste. 200
10220 River Road
Potomac, MD 20854

EXAMINER	
BARRY, CHESTER T	

ART UNIT	PAPER NUMBER
1724	

DATE MAILED: 10/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/667,893	JENKINS ET AL.	
	Examiner	Art Unit	
	Chester T. Barry	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8/18/05, 9/15/05*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date [redacted] 9/15/05
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claims 1 – 4 are rejected under 35 USC Sec. 103(a) as obvious over RINDT in view of "Instrumentation in Wastewater Treatment Plant" (Manual of Practice no. 21), Water Pollution Control Federation (1984) Manual of Practice OM-5, Yust, Tanuma, DE4229550, or DE19509777.

USP 6905872 to Rindt describes an on-line respirometer using both a submerged dissolved oxygen probe 54 and an oxygen gas sensor 56 located in the vessel headspace. Gas bubbles are added to the bioreactor liquid at 46. Oxygen uptake rate (OUR) of the bioprocess is calculated based on the respirometer.

Any one of the following references describes use of OUR in a control scheme to control a bioprocess, e.g., to control air flow rate to an aeration bioreactor, a return sludge rate, or a waste sludge rate.

"Instrumentation in Wastewater Treatment Plant" (Manual of Practice no. 21), at page 34, Table 4-III, E, describes controlling the rate of return sludge based on the oxygen consumption rate at the outlet of the "reactor basin." See also Water Pollution Control Federation (1984) Manual of Practice OM-5, "Process Instrumentation and Control Systems," describing use of on-line respirometers to assist operators in controlling waste and return rates and minimum air requirements in activated sludge processes.

Yust describes controlling the specific oxygen utilization rate (SCOUR) parameter by continuously manipulating the feed distribution between aerator compartments based on on-line monitoring of the volumetric oxygen utilization rate (OUR).

Tanuma ("Dissolved Oxygen ...") describes collecting exhausted gas from an activated sludge process, measuring oxygen content therein, correlating the same to dissolved oxygen, and using that information to control the flow rate of air to the activated sludge reactor. See Fig. 3.

DE4229550 teaches one to control the biological processes of waste-water purification by defined oxygen feed based on a determination of the oxygen consumption rate (see English Abstract). Similarly, see DE 19509777 (col 1 line 28 – col 2 line 3).

It would have been obvious therefore to have used the calculated OUR rate determined by the Rindt apparatus or method to control the air flow rate, return sludge rate, or waste sludge rate via a PLC controller or the like and control valve or the like.

Applicants' arguments traversing the art rejection based on STOVER were carefully considered.

USP 4947339 is cited for disclosure of controller hardware for controlling processes based on oxygen sensor data.

USP 3731522 (paragraph bridging col 4 and 5) is cited for disclosure of another use of OUR data: Determining whether effluent will have a sufficiently benign oxygen-consumption impact on body of water to which it is discharged.

USP 5106511 describes another use of on-line computer-based determinations of the OUR parameter: "[A]dvance warning of a potential process upset in biological reactors treating municipal and/or industrial wastewaters" (Abstract).

Claims 1 – 2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Each of claims 1 – 2 recites, "exercises continuing control" over the introduction of wastewater. It is unclear whether "continuing" means "continuously" (i.e., without interruption), or "continually" (i.e. occurring with interruption), or some other concept of on-going occurrence.

CHESTER T. BARRY
PRIMARY EXAMINER
571-272-1152